OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT

	FY 1995
Office of Civilian Radioactive Waste Management - Grand Total	$9,700,000
Materials Properties, Behavior, Characterization or Testing	$9,700,000
Waste Packages	$9,700,000

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Materials research is ongoing in the Office of Civilian Radioactive Waste Management in the development of waste packages for eventual geologic disposal.

MATERIALS PROPERTIES, BEHAVIOR, CHARACTERIZATION OR TESTING

268.WASTE PACKAGES

$9,700,000

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The development of the nation's high-level waste repository has been delegated to DOE's Yucca Mountain Site Characterization Project Office. Framatome Cogema Fuels (formerly B&W Fuel Company), as part of the Civilian Radioactive Waste Management System Management & Operating (M&O) Contractor, is responsible for designing the waste package and related portions of the engineered barrier system. Progress on the advanced conceptual design of the waste package and the supporting materials studies has been recently documented in the Waste Package Conceptual Design Report.

The waste package design effort includes the development of waste packages to accommodate uncanistered commercial spent nuclear fuel (SNF), canistered SNF, canistered defense high-level waste, and DOE-owned spent nuclear fuel. The analytical effort that is underway to support these designs includes thermal, structural, and neutronic analyses. Also included are materials selection and engineering development..

The waste package materials effort includes the testing and modeling of materials being considered for inclusion in the waste package and the engineered barrier system. The testing includes general aqueous and atmospheric testing, localized attack such as pitting and crevice corrosion, microbiologically influenced corrosion, and stress corrosion cracking. The corrosion test facility will start the long-term (at least five-year) test program in FY 1996. Waste form materials are also being evaluated for oxidation and leaching under repository-relevant conditions. Chemical simulations have recently been performed to evaluate the potential performance of additives to backfill. These latter efforts support both design and performance assessment.

Keywords: Yucca Mountain, Repository, Waste Package, Engineered Barrier System